Trus Joist

Idaho TechHelp

Trus Joist Collars Shear Panel Market

Client Profile:
Trus Joist (TJ) is the world's leading manufacturer and marketer of engineered lumber products. Headquartered in Boise, Idaho, Trus Joist operates 19 manufacturing facilities across North America and employs approximately 4,000 associates around the world. In January 2000, Trus Joist became part of the Weyerhaeuser Company in a partnership that extends from the forest floor to the Silent Floor ®. The Boise facility employs 200 people.

Situation:
Trus Joist thrives on exploring and developing new ideas and products. Before anyone had ever heard of Hurricane Katrina, Trus Joist had developed the TJ®-Shear PanelPanel, a prefabricated wood shear panel solution for structures needing a high-aspect-ratio shear wall. Trus Joist designed the TJ®-Shear Panel to mimic traditional 4' wide site-built shear walls in sections as narrow as 16 inches. One key feature of the TJ®-Shear Panel is that it is anchored to a building's concrete foundation via two 7/8" anchor bolts. Finding a way to correctly position and hold the anchor bolts in place while they were set in concrete became a critical challenge. The TJ design team led by Corporate Engineer, Scott Soule, began designing a plastic anchor bolt holder that could be nailed to a concrete form to correctly position and hold the anchor bolts in place. The main goal was that the holder be simple to use and foolproof to install. Though Trus Joist has its own advanced R&D and testing facility, the design team felt a bit constrained working with plastic. Scott learned about the Idaho TechHelp (TechHelp), a NIST MEP network affiliate, New Product Development (NPD) Team during a tour of the Boise State University Engineering Building where the NPD operation is housed. He hoped to be able develop the bolt holder more quickly using a TechHelp team that had experience working with plastics and the software and hardware tools needed to quickly design and test prototypes.

Solution:
The TechHelp NPD and TJ design teams met to determine product goals and attributes and to develop a scope of work. TechHelp then conducted finite element analysis of various virtual models and materials to assess stress, strain and deformation characteristics and to develop a model that would best meet TJ's needs. The team created prototypes using fused deposition modeling and stereolithography apparatus to produce and test a series of models that led to the creation of a final product that met the design team's goals. The TJ®-BoltCollar and anchor bolt spacer ensure that anchor bolts are accurately placed and require no measuring to set the proper depth and spacing. Scott indicated that TechHelp's ability to quickly make and test prototypes was key to moving the anchor bolt holder project along quickly and reaching a satisfactory result.

Results:

* TJ®-BoltCollar and Shear Panel were conceived, designed, modeled, prototyped, tested and manufactured in the US.
* TJ®-Shear Panels are currently produced in Boise, Idaho, in a pilot production plant.
* Trus Joist is building a new 30,000 foot production plant in Chino, California.
* Sales of TJ®-Shear Panels reached $18,000 in 2004 and are expected to hit $28,000 in 2005.
* The TJ®-BoltCollar is produced by a local manufacturer in Nampa, Idaho.
* Trus Joist expects to sell 40,000 TJ®-BoltCollars by the end of 2005 and about 75,000 in 2006.
* Improved product satisfaction from 65 percent to 95 percent.

Testimonial:
"I was most impressed by TechHelp's flexability and willingess to work with us to meet our needs. By making use of TechHelp's ability to rapidly produce and test prototypes, we were able to move quickly from about a 65 percent level of product satisfaction to about a 95 percent level."
Scott Soule, Engineer